Navy CRADAs

		Address Warfighting Needs	Reduce Cost	Strengthen the Industrial Base	Promote Basic Research	Assure Quality
N1	CRADA between The Naval Training System Center and Computer Group of Motorola, Inc.	●	●		●	
N2	Deep-Towed Acoustic/Geophysical System	●			●	
N3	Demonstration of CL-20 Based Explosive Formulations	●		●		
N4	Detection of Contraband and Narcotics by Nuclear Quadrupole Resonance (NQR)/Fast Recovery Time Nuclear Quadrupole Resonance Detection			●	●	
N5	Electric Vehicle/Hybrid Electric Vehicle Battery Chemistry Research & Evaluation				●	
N6	Exploring the Effects of Lipid-Lowering Agents on Complex Cognitive and Performance Tests	●				
N7	New Paint Formulations for Fluorinated Polyurethane Resins		●	●		
N8	Ocean Bottom Profiler (OBP) Joint Project	●		●	●	
N9	Technical Assistance to CIT			●	●	
N10	Use of Spinning Microfilters to Separate Oil from Water for Abatement of Marine Spills				●	

N1

Title: CRADA Between The Naval Training Systems Center and Computer Group of Motorola, Inc.*

Federal Partner: Naval Air Warfare Center, Training Systems Division (NAWCTSD)

Federal POC: David Kotick

Non-Federal Partner: Motorola, Inc.

Non-Federal POC: Ralph Whitney

Status: Closed

Summary:

The Distributed Interactive Simulation (DIS) interoperability standard provides a protocol for formatting messages that enable simulators to communicate with each other. The interfacing of simulators is highly desirable in the synthetic battlefield.

The objective of this CRADA was to gain experience with the new DIS interoperability standard through jointly developing software to support networking of simulators using distributed interactive simulation.

The three products resulting from this collaboration are: Middle Man, Aladdin and Daemon. The development of these products was a by-product of the original intent which was to gain experience with the interoperability standard. Since Motorola does not hold intellectual property rights, these products are available to government agencies and their contractors free of charge.

Value/Benefits to DoD:

Supports DoD Management Principle: Address Warfighting Needs

The tools developed under this CRADA include a stealth viewer which enables the warfighter to view the synthetic battlefield from different perspectives including a "god's eye view." The software developed under this CRADA was used in several other programs including Army and Air Force programs.

Supports DoD Management Principle: Reduce Cost

By co-developing the software with Motorola, the overall costs to the Government associated with the development of the software was reduced. Simulations, such as the ones developed under this CRADA, allow technologists and warfighters to collaborate earlier in the development process thereby providing users the means for a more thorough evaluation of concepts which leads to substantial cost reductions.

** Now known as the Naval Air Warfare Center, Training System Division*

Supports DoD Management Principle: Promote Basic Research

Experience was gained in working with the new interoperability standard which led to the development of several products. Armed with a new working knowledge in DIS, NAWCTSD can now act in a "Smart Buyer" mode thereby making more educated purchases.

Benefits to Non-Federal Partner:

This CRADA provided the springboard for Motorola to enter the DIS-related software market. Motorola has developed second generation software that is indirectly linked to the work performed under the CRADA. These second generation products are available to the Government at a 40% discount.

N2

Title: Deep-Towed Acoustic/Geophysical System

Federal Partner: Naval Research Laboratory

Federal POC: Joseph Gettrust

Non-Federal Partner: Seafloor Sciences International

Non-Federal POC: Donald Hussong

Status: Open

Summary:

The objective of this CRADA was to improve the state-of-the-art Deep-Towed Acoustic Geophysic System (DTAGS) and the Seafloor International developed Integrated Short Base Line (ISBL) navigation systems through research. The parties were to determine whether coupling the DTAGS with the ISBL would improve the geographical accuracy of NRL's seismic seafloor data interpretation. The joint research was also to evaluate whether the ISBL is suitable for deep ocean applications. The goal of the research was to improve the knowledge of seafloor environmental features for Naval operations.

NRL and Seafloor Sciences jointly refurbished a Navy system. Seafloor Sciences added specialized navigation capabilities to the system that they had learned through their pipeline survey work. The system was then used in an experimental survey in conjunction with JAPEX (a consortium of petroleum research experts). Vertical profiles of the ocean floor were produced. These types of profiles are used in oil and gas exploration. Information on geoacoustic properties of seafloor sediments was obtained which is important in addressing seafloor stability.

In addition to labor hours, Seafloor Sciences also paid the third party costs associated with some of the system's refurbishing efforts. The Navy received data and charts from the Japan survey.

Value/Benefits to DoD:

Supports DoD Management Principle: Address Warfighting Needs

Geoacoustic properties are important to the Anti-Submarine Warfighter operations in determining the propagation of sound in a navigation environment through the water. It can determine the range at which one is able to detect a target actively or passively. Knowledge of geoacoustic properties can provide a tactical advantage to the warfighter.

Supports DoD Management Principle: Promote Basic Research

NRL scientists teamed with industrial scientists to improve laboratory instruments and achieve types of data that otherwise would not have been attained.

Benefits to Non-Federal Partner:

Seafloor Sciences is a survey company that sells geotechnical information to other companies. They are interested in commercializing applications in Deep-Towed Seismic Systems. They are trying to stimulate enough interest in this instrument to warrant commercialization.

N3

Title: Demonstration of CL-20 Based Explosive Formulations

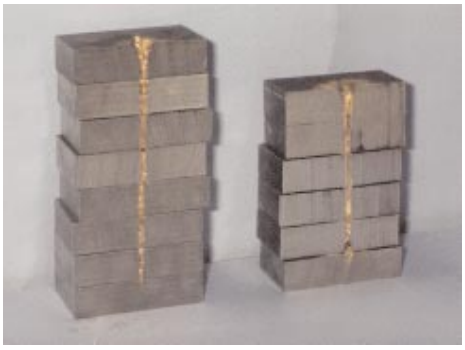
Federal Partner: Naval Air Warfare Center Weapons Division, China Lake

Federal POC: Tom Boggs

Non-Federal Partner: Thiokol Corporation

Non-Federal POC: Charles Zisette

Status: Open



CL-20 (left) penetrated 7 one-inch steel plates while PBXN-5 (right) penetrated only 5

Summary:

The objective of this CRADA between the Naval Air Warfare Center Weapons Division (NAWCWPNS), China Lake and Thiokol Corporation is to develop and demonstrate the performance of high quality explosive fill for warheads with the ultimate goal of testing a warhead containing CL-20 based explosive that demonstrates performance significantly above that of existing explosives. Data is being gathered to demonstrate the advantages of CL-20 in weapons applications. Thiokol has the capability to make the quantities required for weapon demonstration. China Lake will build and test the weapons to demonstrate their capabilities.

Dr. Arnold Nielson, a chemist who has since retired from NAWCWPNS, first synthesized the unique cyclic citramine energetic chemical compound CL-20 in 1987. It was soon realized that CL-20 had greater energy output than existing (in-use) energetic materials while having the same acceptable level of insensitivity to shock and other external stimuli. Further, CL-20-based formulations were clean burning, with reduced signature and also met requirements spawned by the Government's emphasis of its role in preserving the natural environment. The CL-20 chemical compound was recently issued as a Navy patent (Patent No. 5,693,794) on December 2, 1997.

The interest in CL-20-based propellants and explosives lies with their flexibility in making trade-offs between requirements. For example, CL-20-based propellants can be produced having high performance, reasonable hazards, low plume signature, and with clean exhaust products.

NAWCWPNS has continued to characterize and refine the CL-20 molecule, while Thiokol has been working on the CL-20 molecule produced from their own processes. Thiokol in conjunction with NAWCWPNS scaled-up its process to the point where it could produce 1,000-plus pound batches of the material. While there have been other new energetic materials developed over the years, none have been successfully scaled-up to mass production levels. A new Navy Manufacturing Technology Program to scale up the CL-20 production process is planned for FY99 that will include NAWCWPNS, Naval Surface Warfare Center Indianhead Division, and Thiokol.

Value/Benefits to DoD:

Supports DoD Management Principle: Address Warfighting Needs

CL-20 has greater energy output than existing (in-use) energetic ingredients while having an acceptable level of insensitivity to shock and other external stimuli which meets the Navy's criteria for development of "insensitive munitions," capable of withstanding unplanned exposure to external forces. It is hoped that a warhead containing a CL-20-based explosive will demonstrate performance significantly above that of existing explosives.

Supports DoD Management Principle: Strengthen the Industrial Base

The successful completion of this CRADA will demonstrate the potential for CL-20. Therefore, it is hoped that the demand for the material will increase. With increased demand and improved production processes for high-grade product, availability will increase leading to a lower cost for the ingredient. CL-20 is a dual-use material and should find wide application in commercial as well as military markets, thus reducing the production cost for military use.

Benefits to Non-Federal Partner:

The ability of Thiokol to scale-up its manufacturing process has made them the only manufacturing source for CL-20. Thiokol plans to use the data being gathered to demonstrate the advantages of CL-20 which will hopefully lead to business from other sources including the commercial marketplace. Thiokol also plans to market the Navy to see if there is interest in developing a warhead program that will use this material in their explosive. Thiokol has also been marketing the basic ingredient as well as end-product formulations for explosives, gun propellants and, to a lesser degree, rocket propellants

N4

Title: Detection of Contraband Narcotics by Nuclear Quadrupole Resonance (NQR) (Follow-on CRADA: Fast Recovery Time Nuclear Quadrupole Resonance Detection)

Federal Partner: Naval Research Laboratory

Federal POC: Dr. Al Garroway

Non-Federal Partner: Quantum Magnetics (owned by Invision)

Non-Federal POC: Dr. Lowell Burnett

Status: Closed

Summary:

The Navy has had a general interest in advanced detection capabilities for narcotics for use with its own forces. In the past this work has been sponsored by DoD and the Defense Advanced Research Projects Agency 's (DARPA's) Counterdrug Program.

The objective of the initial CRADA between the Naval Research Laboratory and Quantum Magnetics was to look at using quadrupole resonance to detect heroin hydrochloride and cocaine hydrochloride. The signal, however, was very difficult to see. It was determined that the objectives of this CRADA were too aggressive. Therefore, a second CRADA was initiated to focus on specific advanced circuitry, a rapid recovery receiver, to detect narcotics and explosives. NRL has evaluated the circuitry and has given the data to Quantum Magnetics. NRL will keep the circuit for two years for laboratory use.

Value/Benefits to DoD:

Supports DoD Management Principle: Strengthen the Industrial Base

The advanced circuitry studied in this CRADA will be incorporated into a larger commercial system, "Qscann," which will result in a better scanner than what is currently available.

Supports DoD Management Principle: Promote Basic Research

Working in partnership streamlined the advancement of knowledge in the applications of quadrupole resonance for explosive and narcotics detection.

Benefits to Non-Federal Partner:

The non-federal partner hopes to commercialize the advanced detection technology. The potential customer base for this type of detection equipment includes US Customs, airports, airlines, and embassies.

N5

Title: Electric Vehicle/Hybrid Electric Vehicle Battery Chemistry Research and Evaluation

Federal Partner: Naval Surface Warfare Center, Crane Division

Federal POC: Jim Gucinski

Non-Federal Partner: AdvanceTek

Non-Federal POC: Ellen Engleman

Status: Open

Summary:

AdvanceTek is an Indiana not-for-profit organization. Electrocore, a partnership of the Naval Surface Warfare Center, Crane Division, AdvanceTek, Purdue University and Indiana University was established by AdvanceTek to advance research and development of Electric and Hybrid Electric Vehicle (EV/HEV) technologies. Electrocore developed a Battery Evaluation and Testing Center (BETC) to provide testing evaluation services to the EV/HEV industry for all power systems.

The objective of the CRADA with AdvanceTek was to determine a means to measure the propulsion capacity of batteries to provide the passenger of an electric vehicle with information on how far the car can travel before recharging of the battery is necessary. Working to meet this objective, the partnership is currently working to develop an algorithm for adaptive State-of-Change and State-of-Health systems for hybrid and electric vehicle battery pack applications.

Value/Benefits to DoD:

Supports DoD Management Principle: Promote Basic Research

The partners involved in this CRADA are advancing basic research in methods of measuring the usable energy capacity in batteries. A better understanding of vehicular battery technologies will lead to more effectively utilizing batteries for DoD applications. This new knowledge may also lead to the effective use of batteries as a propulsion mechanism for electric vehicles which is of interest to both the automobile and electric power generation industries.

Benefits to Non-Federal Partner:

The research conducted under this CRADA will provide AdvanceTek with a basic understanding of battery technology which will promote long-term developments in the electric vehicle and hybrid electric vehicle technologies.

N6

Title: Exploring the Effects of Lipid-Lowering Agents on Complex Cognitive and Performance Tests

Federal Partner: Naval Medical Research Institute

Federal POC: LCDR Eric Bower, MD

Non-Federal Partner: Bristol-Myers Squibb

Non-Federal POC: Dr. Joan Stagger

Status: Closed

Summary:

Elevated serum cholesterol remains a significant risk factor in the development of coronary artery disease (CAD). Primary prevention of myocardial infarction with HMG-CoA reductase inhibitors has been well documented, and extends the potential use of these agents into a much larger population. A recent report raised the possibility of central nervous system effects from the use of this class of medication. Given the increasing potential that younger, active duty aviators could be placed on this class of medication for primary prevention of CAD, it became necessary to evaluate members of this class for possible cognitive side effects.

The objective of this CRADA was to investigate the effects of two cholesterol-lowering medications (pravastatin and lovastatin) on cognitive performance. No significant adverse effects were observed from study participants. Baseline cognitive testing showed no difference between groups and no difference from published norms. Cognitive testing following drug administration showed no difference between placebo and either treatment group, and no difference from baseline testing. Pravastatin and lovastatin had no measurable effect on cognitive performance as measured by a computerized neuropsychologic test battery. The ability to complete a standardized clinical pharmacology trial in an active duty population while maintaining flight status has been demonstrated.

"Lack of Measurable Effect of HMG-CoA Reductase Inhibitors on Cognitive Performance," E.A. Bower, R.N. Baney, P.M. Holmes, S. Biggerstaff, K. Selby, and T.B. Calvit, Naval Aerospace Medical Research Laboratory & Naval Operational Medicine Institute, Pensacola, FL, presented at the Aerospace Medical Association's Annual Meeting, May 1998, Seattle.

Value/Benefits to DoD:

Supports DoD Management Principle: Address Warfighting Needs

As a result of this CRADA, flight surgeons now have additional medications in their formulary that can be used to safely treat aviators with elevated cholesterol levels, and potentially prevent first time myocardial infarctions in this population.

Benefits to Non-Federal Partner:

Through the writing and presentation of the findings, the safe use of the drugs for pilots will be publicized without making a change in the use of the medication. Given that the military aviation community has much stricter standards for health and safety than the civilian community, the implication is that if the medication is approved for use in military airmen the average pilot would feel more comfortable using the medication. The study resulted in an approved drug for use in military aircrew, from which Bristol-Myers Squibb gained an expanded market by extension.

Other Benefits:

The Navy was able to receive vital information on the effects of these medications on cognitive performance which was used in recommendations to the Bureau of Medicine and Surgery. Recommendations based on the results of the study provided information for use of the drug on a new population.

N7

Title: New Paint Formulations for Fluorinated Polyurethane Resins

Federal Partner: Naval Research Laboratory

Federal POC: Dr. Robert Brady

Non-Federal Partner: 21st Century Coatings, Inc.

Non-Federal POC: Grover Howard and Gene Lindsey

Status: Closed

Summary:

The Navy was using a fluorinated polyurethane paint as a top coat for their Navy Facilities Engineering Command, Navy Facilities Guide Specification 09872 four-coat paint system used to coat the inside of petroleum storage tanks. This top coat cost $750.00 per gallon. 21st Century licensed the technology for the fluorinated polyurethane from the Navy and combined it with technology from other patents and developed a three-coat variant paint system called WC5, Navy Facilities Guide Specification 09970.

21st Century tested this new paint system at the Naval Research Laboratory paint shop facility. The WC5 is a highly fluorinated coating that is very stable and hydrophobic as well as UV resistant, flexible and chip resistant. The top coat used in WC5 costs $180.00 per gallon. WC5 is now used on Navy petroleum storage tanks as well as those of the Army Corps of Engineers.

Value/Benefits to DoD:

*Supports DoD Management Principle: Reduce Cost**

In going from a four-coat paint system (wash primer coat, zinc-rich urethane coat, urethane manufacturing coat and fluorinated top coat) to a three-coat paint system (two epoxy coats and a highly fluorinated top coat) incorporating the less expensive top coat can save in both labor and material costs. As an example of the cost savings, coating a tank 40 feet in diameter by 35 feet in height with the old system would cost approximately $29,714.00 compared to the same tank coated with the WC5 system which would cost approximately $12,952.00. The savings just in the application costs in going from a four-coat process to a three-coat process is $2,827.44.

Supports DoD Management Principle: Strengthen the Industrial Base

By establishing a commercial source for the fluorinated polyurethane resin used in the WC5 paint system, the Navy can buy it from the commercial source more cheaply than the earlier Navy-approved paint system. The Army Corps of Engineers as well as others in the commercial sector use this paint system on petroleum storage tanks as well as on other welded steel products.

Benefits to Non-Federal Partner:

21st Century Coatings benefits from brokering the resin product to paint manufacturers.

Other Benefits:

The Naval Research Laboratory receives royalties from the Patent License Agreement for the resin material as laid out in the CRADA.

*Calculations for a tank 40ft in diameter by 35ft in height:

Surface area of 5,654.88 ft^2 (not including internal top structures)
Application costs of .50/ft^2

Four-Coat System:
Wash primer coat @$9.00/gallon and coverage of 300 ft^2/gallon
Zinc-rich urethane coat @ $20.00/gallon and coverage of 380 ft^2/gallon
Urethane manufacturing coat @ $43.00/gallon and coverage of 250 ft^2/gallon
Fluorinated top coat @ $750.00/gallon and coverage of 250 ft^2/gallon

WC5 Three-Coat System:
Epoxy coat #1 @$21.00/gallon and coverage of 220 ft^2/gallon
Epoxy coat #2 @$21.00/gallon and coverage of 220 ft^2/gallon
Fluorinated top coat @ $180.00/gallon and a coverage of 300 ft^2/gallon

N8

Title: Ocean Bottom Profiler (OBP) Joint Project

Federal Partner: Naval Undersea Warfare Center, Newport Division, (NUWCDIVNPT)

Federal POC: Ken Walsh

Non-Federal Partner: Precision Signal, Inc., (PSI)

Non-Federal POC: Dr. Lester LeBlanc

Status: Closed

Summary:

In this CRADA, NUWCDIVNPT and PSI collaborated to develop state-of-the-art equipment known as the Ocean Bottom Profiler, OBP. The OBP was to be capable of mapping the ocean floor in deep and shallow water as well as be able to study the geomorphology of the bottom by returning information on sediment layers.

The Ocean Bottom Profiler program produced the 512 Sonar Vehicle which was first tested and modified at the NUWCDIVNPT laboratory for use in Narragansett Bay. As a result of this testing and calibration, acoustic transducers, receiver arrays, and acoustic baffle materials were incorporated into the 512 design that have made the 512 profiler superior in performance to all bottom profiling vehicles worldwide.

Under this CRADA, NUWCDIVNPT and PSI have worked to develop a more complex Ocean Bottom Profiler that is capable of producing three-dimensional images of the sub-bottom sea floor. With this new vehicle, buried objects in the sea floor can be located and improved data for remote classification of the sea floor can be obtained. PSI and NUWCDIVNPT have worked to develop an array of receivers for electronic near-field beamforming objects in the sediment. Using previously developed acoustic transducer and acoustic baffle technology, a large, low frequency vehicle was constructed at PSI, and test data proved the feasibility of acoustic detection of buried objects in the sea floor. Acoustic sediment layers can now be measured in the ocean floor down to a level of 64 meters with a 9 cm resolution. Today new, smaller, high frequency design of this vehicle is under development for use on Autonomous Underwater Vehicles (AUVs) to survey sea floor sediments and locate buried objects in remote shallow water locations.

Diane Medeiros, "Development of a Sonar System for Ocean Bottom Profiler," Third Joint Meeting of the Acoustical Society of America and the Acoustical Society of Japan, Honolulu, HI, 2-6 December 1996.

Value/Benefits to DoD:

Supports DoD Management Principle: Address Warfighting Needs

The results of these efforts significantly contributed to the design of the AN/WSQ-9 Sonar System, a NUWCDIVNPT initiative that will soon provide significant new warfighting capabilities in mine detection to the U.S. Submarine Fleet. The first installation of this capacity into a U.S. submarine is planned for FY99.

Supports DoD Management Principle: Strengthen the Industrial Base

The 512 Sonar Vehicle is a dual-use development used by many universities, commercial and military users to obtain quantitative and qualitative information on sea floor sediments. The 512 Sonar Vehicle is now manufactured and marketed worldwide by Edge Tech, Inc. under an agreement with PSI.

Supports DoD Management Principle: Promote Basic Research

In the course of developing the OBP, valuable research was accomplished in the disciplines of acoustics and signal processing, as well as in electronic design, to achieve a multi-channel sub-bottom imaging device which could be incorporated into several different applications.

Benefits to Non-Federal Partner:

PSI developed the 512 Sonar Vehicle for commercial use in mapping and classification of sea floor sediments and marketed worldwide by Edge Tech, Inc. under an agreement with PSI.

PSI designed an "in-hull" version of the OBP to be used on large vessels for both shallow and deep water applications. A system was installed on the RV Endeaver by PSI and used by Naval Research Laboratory (NRL) to survey sea floor sediments in coastal North Atlantic waters. The data from these surveys were used by NRL to develop a sea floor classification model using Biot theory. The program was successful and, as a result, the OBP is being considered for use in the U.S. Navy.

Other Benefits:

In addition to the contribution to the AN/WSQ-9, the Government received several valuable by-products of the OBP research. These include detailed sub-bottom profiles of the area of Narragansett bay in the vicinity of Gould Island, a suite of computer programs for wave-form design, and refinement of techniques that can be used to find buried mines, perform bottom surveying support of amphibious operations, perform bottom feature navigation for submarines and unmanned underwater vehicles in shallow water operations, and characterize the ice cap structure from below.

N9

Title: Technical Assistance to CIT

Federal Partner: Naval Surface Warfare Center, Dahlgren Division (NSWCDD)

Federal POC: Ramsey Johnson

Non-Federal Partner: Virginia Center for Innovative Technology, (CIT)

Non-Federal POC: Dr. Eilene Heveron, CIT and Dr. Ed Veazey, S.E. Ventures, Inc.

Status: Closed

The Sea Alert Hat

Summary:

The Office of Naval Research had given their laboratories between $3K and $5K for technical assistance to small businesses. With this funding, NSWCDD generated this CRADA with Virginia Center for Innovative Technology (CIT) with the idea to transfer technology from NSWCDD to those companies in the Commonwealth of Virginia that through the CIT have requested such technology. It was expected that technology in the fields of Devices and Sensors, Information and Systems Sciences, Advanced Data Processing Methods, Pulsed Power Technology, Simulation and Modeling, and Electromagnetic Environmental Effects would be of the most interest for cooperative research.

During the terms of the agreement with CIT only one company, S.E. Ventures, requested technical assistance and was interested in radiography range assistance. This small business was developing apparatus to assist stranded mariners. The life saving tools called Sea and Ski Alert hold the promise of locating lost and stranded persons by making them more visible to searching radar and afford new ways of hoisting strobe lights and flares. The CRADA was developed to tests these products on the NSWCDD River Range. The tests focused on the products' reliability at different radar ranges and, preliminarily, resulted in favorable performance.

Value/Benefits to DoD:

Supports DoD Management Principle: Strengthen the Industrial Base

One goal of this particular CRADA was to strengthened technology transfer through encouraging the sharing of facilities and equipment and providing technical assistance for small business in the Commonwealth of Virginia. However, depending on what type of assistance was needed, as outlined in the statement-of-work, determined whether the results contributed to strengthening the industrial base. In this particular case where there was only one effort pursued under this CRADA. The effort indeed contributed to strengthening the industrial base through the commercialization of the Sea and Ski Alert devices.

Supports DoD Management Principle: Promote Basic Research

The objective of this CRADA was to promote partnerships between small businesses in the Commonwealth of Virginia and the Naval Surface Warfare Center, Dahlgren Division to advance technology through facility sharing and providing technical assistance to those who sought it. This assistance led to the conquering of technical hurdles and advancing research.

Benefits to Non-Federal Partner:

This CRADA provides a means for small businesses to team with a DoD laboratory to overcome technical roadblocks related to the advancement of their technology.

N10

Title: Use of Spinning Microfilters to Separate Oil from Water for Abatement of Marine Oil Spills

Federal Partner: US Naval Surface Warfare Center (NSWC), Carderock Division

Federal POC: Dr. E. Fischer

Non-Federal Partner: Marine Spill Response Corporation (MSRC)

Status: Closed

Summary:

The Marine Spill Response Corporation (MSRC) was a consortium of oil companies, funded by Superfund, whose purpose was to investigate technologies for handling oil spills at sea. After an initial briefing by NWSC to MSRC on NSWC capabilities, a CRADA was developed to demonstrate the separation of seawater from oil spill fluids in a wide range of viscosities using non-clogging spinning microfilter oil/water separator technology.

NSWC initially demonstrated that the quickest way to alleviate oil spills at sea was to burn the contaminated oil/water mixture in a furnace at sea. However, this was discouraged by the Superfund sponsors. A new concept of separating the oil/water mixture and later disposing of the separated components was explored. A working prototype was developed to prove the concept.

The spinning microfilter separation process was patented by NSWC. NSWC believes that this process may have additional commercial applications.

Value/Benefits to DoD:

Supports DoD Management Principle: Promote Basic Research

The new concept explored under this CRADA has led to the development of a patented process to quickly and effectively separate oil from water with the use of a spinning micro-filter system.

Benefits to Non-Federal Partner:

Unfortunately, the consortium lost funding and never was able to utilize the process that was developed. However, it is believed that there will be other commercial applications for the process.